

The Brumadinho disaster and work of the Health Surveillance service

doi: 10.5123/S1679-49742019000100025

The *Córrego do Feijão* mine dam burst at 1.35 p.m. on January 25th 2019. The dam belonged to the Vale S.A. mining company and was located in the municipality of Brumadinho, in the metropolitan region of Belo Horizonte, the capital city of Minas Gerais state. The dam had been inactive since 2015 and stored 12 million cubic meters of mud containing iron mining tailings.

The mud immediately struck the mining company's facilities at the site, including an administration complex, a canteen, maintenance workshops, a loading terminal and a railway. The company initially stated that there were some 300 workers at the facilities when the dam burst. A nearby village and a hostel were also directly affected where there were several dozen people at the time. Just minutes later – when it had already claimed dozens of lives and left a trail of destruction –, the huge wave of contaminated mud reached the bed of the River Paraopeba.

The Ministry of Health (MoH) took immediate action and began working in an integrated manner with Brumadinho city government and with Minas Gerais state government, as well as with other Federal Government bodies, in order to ensure the best possible health care for the affected population. Professionals of the Brazilian Health System National Taskforce (FN-SUS),¹ jointly comprised by the MoH Health Surveillance Secretariat (SVS) and Health Care Secretariat (SAS), traveled to Brumadinho to support emergency management, health care, water quality surveillance and occupational health actions. A temporary First Aid Station was set up near to the site and, shortly after the dam burst, all the region's Urgent Mobile Care Service (SAMU 192) teams were mobilized. Kits of medication and strategic supplies, vaccines, as well as 150 hospital beds were made available to meet the needs of the affected population. In addition, four-wheel drive vehicles were donated to the governments of Brumadinho city and Minas Gerais state to reinforce health surveillance actions in hard-to-reach areas hit by the mud.

Just over an hour after the disaster, SVS set up a Public Health Emergency Operations Center (COES),² with assistance from the MoH Health Care Secretariat, Executive Secretariat and Indigenous Health Secretariat; complementing this, SVS technical departments were also brought into action. Some 70 health professionals worked to provide support to field actions and management of the emergency health plan, in actions carried out 24 hours a day, 7 days a week, until they were demobilized on March 14th.

SVS' Department of Environmental and Occupational Health Surveillance (DSAST),³ which coordinates the COES, began monitoring the direct and indirect impacts on the population related to the chemical contamination of drinking water, food and soil; the damage to water supply networks and alternative sources of water supply; the alteration in the cycle of disease vectors, hosts and reservoirs; and the alteration in forms of environmental exposure. It also provided additional support to the Betim/MG Occupational Health Reference Center (CEREST), designated as the reference service for support actions for affected workers. The SVS technical departments performed reconnaissance of the health situation in the 18 municipalities along the banks of the River Paraopeba, so as to provide input for assessing possible impacts of the disaster.

A week after the dam burst, 110 fatal victims had been accounted for, 71 of whom had been identified; 192 people had been rescued; 395 located, 108 displaced and 238 were missing. By that time, the likelihood of still finding survivors was remote, and these alarming figures already characterized the Brumadinho disaster as the biggest work-related accident in Brazil's history. It must be emphasized, however, that even more harm to the health of people living near to the River Paraopeba may be caused, owing to the risk of water and soil being contaminated by heavy metals. The Minas Gerais Water Management Institute (IGAM) and the National Mining Agency (ANM) have alerted that the *Córrego do Feijão* mine reservoir had a high pollution potential.


It is appropriate to recall the disaster that happened on November 5th 2015 in the municipality of Mariana, also in Minas Gerais state, when the *Fundão* dam burst and released 70 million cubic meters of mud containing iron mining tailings. Considered to be the biggest environmental disaster in Brazil's history, it affected an area of land much greater than the Brumadinho disaster did, although it resulted in fewer deaths (19). The environmental damage caused has still not been overcome and has had consequences for the population's health not only at the disaster site, but also along

the entire River Doce basin, where the water remains unfit to drink owing to heavy metal contamination. In addition to diseases related to water quality, the population affected by the Mariana disaster has experienced the resurgence of other health problems, such as vector-borne diseases, respiratory diseases and mental health conditions.


In both cases, it is important to contextualize the disasters within a scenario of exploitation of natural resources by large corporations with foreign shareholdings. This implies aggravation of economic, territorial, environmental and social inequalities which, in turn, foster health inequities. The difficulties faced by workers and communities in defending their rights are also made evident. Within this context, and in the face of the existence of dozens of dams on Brazilian territory in similar conditions to those mentioned above, the relevance of SUS is patently clear, as is the need to strengthen occupational and environmental health surveillance systems, as well as the management of public health emergencies and response to disasters. It is fitting to highlight that most important of all is the strengthening of local bodies (municipal governments), so that they have the capacity to respond and recover in the face of public health emergencies.

The Sustainable Development Goals (SDG)⁴, otherwise known as the Global Goals, adopted by the United Nations Member States following on from the Millennium Development Goals (MDG)⁵, contain the following targets as part of Goal 3 – Health and well-being: (i) Strengthen the capacity of all countries for early warning, reduction and management of health emergencies and risks (target 3D); and (ii) substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination (target 3.9).

Organization of the health emergency management process – in its context of risk reduction, emergency management and recovery from the effects thereof – is essential in order for MoH, its divisions and all other SUS management levels to act in a coordinated and timely manner. Only coordinated action within SUS can provide proper care to affected people, minimizing harm to human and environmental health. Moreover, strengthening health surveillance is fundamental for Brazil to achieve the SDG targets, thereby contributing at national and global level to sustainable development.

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